MICHIGAN STATE UNIVERSITY EXTENSION

SPECIAL PLANT SURVEY FORM

Michigan Natural Features Inventory

SURVEYOR INFORMATION

Survey date: 2009-08-12	Time from: 4:45 to: 5:15 am or (pm) (circle)	Sourcecode: F _____ MIUS

Surveyors (principal surveyor first, include first & last name): Steven Garske and Chauncey Moran

Weather conditions: Sunny, high in the 80s (°F)

Revisit to this EO needed? X yes ___ no Why?: If a planned industrial haul road is built, it could destroy the population.
EO refers to element occurrence i.e. the species this form is reporting on

ELEMENT INFORMATION

Scientific name: Myriophyllum farwellii Morong	Data sensitive? (Y) N	EOID:	Occ.# (if known):

FILING

SURVEYSITE:	SITENAME:
QUADCODE:	QUADNAME:

LOCATIONAL INFORMATION

Was the Landowner contacted? Yes _____ No X Landowner Name: GMO Renewable Resources LLC

Owner Type: Timber/land development Note: Commercial forest land, open to the public

DIRECTIONS: Provide detailed directions to the observation (rather than the survey site). Include landmarks, roads, towns, distances, compass directions.

From the town of Humboldt, follow the Wolf Lake Road and subsequent roads ± north roughly 18-20 miles, past Brocky Lake and the Dead River, until you reach Wildcat Canyon Creek (west of Silver Lake Basin). The M. farwellii inhabits the pools on the north side of the creek, just east of the road.

Township/Range/Section T49N, R29W, NE¼ NE¼ NW¼ Section 11.

County Marquette | Managed area name: _____

Was GPS used? Yes X No _____ Type of unit Magellan Sportrac Pro Unit number _____

Waypoint name/# (when using Garmin) _____ File name (when using Trimble) _____

OPTIONAL: Latitude 46.66457 N Longitude 87.89878 W (WGS 1984)

FEATURE INFORMATION (mandatory) Point: <12.5 m in both dimensions, Line: >12.5 m in one dimension, Polygon: >12.5m in both dimensions

Source Feature: Single Source EO _____ Multi-Source EO _____ Conceptual Feature Type: (Point) _____ Line _____ Polygon _____

TOPOGRAPHIC MAP (mandatory, the website topozone.com can be used as a source for these maps)

1. Attach a photocopy of the appropriate part of a USGS topographic map (1:24,000 scale if available) and write the map scale on the photocopy. Please do NOT enlarge or reduce the map.
2. Indicate on the map the exact location of the observation(s):
   a. When the observed area is ***no larger than a pen point*** on the map (i.e., only a small number of individuals or extremely small patches), place small points on the map indicating the location(s) of the individuals or patches, and label each point with an arrow so they are more easily seen.
   b. When the observed area is ***larger than a pen point*** on the map, (e.g., a population of plants, foraging birds):
      (1) Draw a thin solid boundary line showing the extent of the observed area occupied by the individuals.
      (2) Indicate disjunct patches (polygons) by drawing the boundary for each patch separately.
      (3) If the boundary follows the edge of a lake, stream, road, marsh or other feature, draw the boundary precisely on the edge of the feature.
      (4) Where needed, add notes to the map with instructions on where the boundary line is located or if the boundary is shared with other observations.
3. A hand drawn sketch may be included for finer details.

LOCATIONAL CERTAINTY

Is your depiction of the observed area on the map within 6.25 **m (approximately 20ft)** of its actual location on the ground? (Y) N

If N, complete the following:

a. Estimate of uncertainty distance: based on landmarks, elevation, etc., the location of the observed area on the map is accurate to within _____ meters kilometers feet miles of its actual location on the ground.

b. Is the observed area known to be located within some feature(s) on the map (e.g., wetland boundary, lake, road, trail, highway, contour lines)? Y N

If Y, indicate the boundary within which the observed area is known to be located on the map line, and if applicable, identify the feature (e.g., marsh).

IDENTIFICATION
Photograph/slide taken? X yes ___no If yes, will a copy be submitted to Heritage? X yes ___no (soon) MNFI office: Added to collection?___ (check)

Specimen collected? X yes ___no Collection # and repository: #761, University of Michigan Herbarium (MICH)

Identification problems? ___yes X no If necessary, describe the important plant characteristics you used for identification: No terminal inflorescences; leaves sometimes subopposite, and totally limp upon removal from water, as described in Michigan Flora Part II (Voss 1985).

SIZE AND PHENOLOGY Size is a quantitative measure of the area and/or abundance of an occurrence. Components of this factor are 1) area of occupancy, 2) population abundance, 3) population density and 4) population fluctuation.

Abundance (total size of the occurrence): ___ Type of measurement (check one)

Ramets (total # of individuals): several hundred ___precise count X estimate

Genets (total # of groups): Quite possibly one genetic unit ___precise count X estimate

Population density (i.e., widely scattered, dense clumps, evenly distributed throughout): Small, fairly dense clumps in small pools.

Area of occupancy (fill in one): 12 meters^2 _____yards _____acres Type of measurement (check one): ___Precise X Estimate

Phenology: Indicate the number observed in each category (or check if numbers are unknown):
✓ in leaf ___in bud ___in flower ___immature fruit ___mature fruit ___seed dispersing ___dormant ___seedlings
100 %.

ASSOCIATED SPECIES

Ground cover: (20% cover) (rough estimate)	Wetland edge adjacent to pools [redacted]: (95% cover)	Overstory/Tree Species: (___% cover) N/A
Brasenia schreberi	Carex stricta	
Nuphar variegata	Carex lux baumii	
Utricularia vulgaris	Myrica gale	
Potentilla palustris		
	(partial list)	

CONDITION:
Condition is an integrated measure of the quality of biotic and abiotic factors, structures and processes within the occurrence, and the degree to which they affect the continued existence of the occurrence. Components of condition for species are: 1) reproduction and health, 2) ecological processes, 3) species composition and biological structure, 4) abiotic physical/chemical factors. Factors to consider: evidence of regular successful reproduction, habitat degradation, disturbance, presence of exotic species, the degree to which ecological processes are sustaining the habitat. Where possible include a comparison to other occurrences.

BIOLOGY and REPRODUCTION

EVIDENCE OF REPRODUCTION? ___yes ✓ no ___unknown Explain: No flowers or fruit were found on any of the shoots examined.

EVIDENCE OF DISEASE OR PREDATION: None evident

ANIMAL POLLINATORS observed on the plant (list species): None noted.

Do other members of this genus or look-alike plants co-occur at this survey site? ___yes X no If yes, list the species: _____

CONDITION (continued)

HABITAT DESCRIPTION: Describe the specific habitat or micro habitat where this plant occurs. Convey a mental image of the habitat and its features including: land forms, aquatic features, vegetation, slope, aspect, soils, associated plant and animal species, natural disturbances.

The Myriophyllum farwellii population inhabits several small pools on the north side of Wildcat Canyon Creek. These pools are roughly 0.4 to 0.7 meters deep. The plants were rooted in loose organic silt. This organic layer overlayed hard, probably sandy bottom about 1 meter below the surface. The water was dark with tannins, hiding the bottom from view. The M. farwellii plants tended to be slightly shaded by Myrica gale and other nearby vegetation. Associated aquatic vegetation was relatively sparse.

LANDSCAPE CONDITION: Describe the condition of the landscape surrounding the elements habitat (i.e., farmland, residential area, pristine forest)

Except for the 2-track road just west of the site, and the short side road just north of it, the area consists of a nearly pristine complex of "second growth" forest, old-growth forest, and wetlands.

CURRENT THREATS to this occurrence (i.e., grazing, logging, mining, plantations, ATVs, dumping, etc.) Discuss exotics in the next section.

None evident at present.

POTENTIAL THREATS to this occurrence: A consortium of Kennecott Mining, timber and other corporate interests have formed "Woodland Road LLC", which plans to build a paved, 2-lane industrial haul road

EXOTICS PRESENT? ___yes X no. [redacted] approximately along the route of the current 2-track road. Construction would fill wetlands and deposit silt, sand and gravel into the creek, immediately upstream from the population. Road salt, rockdust, heavy metals, and chemical spills would be long-term threats.

PAST IMPACTS to the occurrence (i.e., logging, , etc.): Past impacts to the stream and the watershed presumably include erosion and siltation from sporadic logging and construction (many years ago) of the existing 2-track road and narrow bridge.

TOPOGRAPHY	Aspect:	Slope:	Light:	Position:	Moisture:
Elevation: ≈ 1679 ft.	___N ___NE	X flat	___X open	___crest	X Inundated
If elevation is a range:	___E ___NW	___0-10	X partial	___upper slope	___saturated (wet-mesic)
Minimum: _____ ft.	___S ___SE	___10-35	___filtered	___mid slope	___moist (mesic)
Maximum: _____ ft.	___W ___SW	___35+	___shade	___lower slope	___dry-mesic
	Flat	___vertical		___bottom N/A	___dry (xeric)

MANAGEMENT AND PROTECTION

MANAGEMENT, MONITORING AND RESEARCH NEEDS for this occurrence (e.g. burn periodically, open the canopy, ensure water quality, control exotics, keep out the ATV's, study effects of browsing)

Erosion and siltation from the poorly-maintained 2-track road should be controlled. Because of the altered hydrology, siltation, and chemical contamination certain to occur during its construction and heavy use, an industrial haul road should not be built here.

AREAS IN NEED OF PROTECTION: (e.g. the entire marsh, the slope and crest of slope, the fen and upland, etc.) The creek, pools, and surrounding shrub swamp and forests should be protected.